

alone. Among many involuntary smoke exposures, the odds ratio for women who reported exposure to others' cigarette smoke in the workplace was 1.7 (95% CI 1.2-2.4). Adjusted estimates for combinations of maternal and paternal smoke exposures, for other involuntary exposures, and for isolated and multiple case groups will be presented."

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APPENDIX B

UPCOMING SCIENTIFIC MEETINGS

- April 13, 1994

Indoor Air Quality: An Overview for People Who Need to Know, AIHHM, Minneapolis, Minnesota [Issue 57, Item 35] Same program to be held May 5, 1994, Chicago, Illinois; June 17, 1994, Oklahoma City, Oklahoma; July 14, 1994, Anchorage, Alaska

- April 19-22, 1994

Waste Combustion in Boilers and Industrial Furnaces, Course on Air Toxic Risk Assessment, Air and Waste Management Association, Kansas City, Missouri [Issue 68, Item 23]

- May 5-7, 1994

Second Annual IAQ Conference and Exposition, NCIAQ, Tampa, Florida [Issue 49, Item 35]

- May 22, 1994

Indoor Air Quality Symposium, American Industrial Hygiene Conference and Exposition, Anaheim, California [Issue 57, Item 34]

- May 30-June 3, 1994

Conference on Microfungi and Their Role in IAQ, Ottawa, Canada [Issue 68, Item 24]

- August 22-25, 1994

Healthy Buildings '94, Budapest, Hungary [Issue 63, Item 26]

- September 7, 1994

One-Day IAQ Course, Environmental Law and Policy Program, George Washington University, Washington, D.C. [Issue 63, Item 25]

- October 6-8, 1994

Healthy Indoor Air '94, Anacapri, Italy [Issue 68, Item 25]

- October 10-14, 1994

9th World Conference on Tobacco and Health, Paris, France [Issue 60, Item 38]

- October 18-20, 1994

Indoor Air Quality in Asia, Beijing, China [Issue 54, Item 42]

- October 30-November 2, 1994

IAQ '94: Engineering Indoor Environments, ASHRAE and other sponsors, St. Louis, Missouri [Issue 58, Item 42]

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APPENDIX A

The numbers assigned to the following article summaries correspond with the numbers assigned to the synopses of the articles in the text of this Report.

LUNG CANCER

- [37] "Cancer Incidence Among Waitresses in Norway," K. Kjaerheim and A. Andersen, *Cancer Causes and Control* 5: 31-37, 1994

"Passive smoking also has been related to increased lung cancer risk, and this may be of importance in an occupational group exposed to environmental tobacco smoke through most of the working day."

"In Norway, women constitute approximately 75 percent of persons employed in the restaurant business. It is therefore the aim of this study to analyze the pattern of cancer incidence among waitresses with a special emphasis on cancer sites related to alcohol and tobacco consumption, in an attempt to determine whether cancer risk is equally high for waitresses as for their male colleagues."

"The present study showed no increased risk of alcohol-associated cancers in waitresses. However, an excess risk of lung cancer and cervical cancer, and a lowered risk of breast cancer were found. The increased risk of lung and cervical cancer was more pronounced in the sub-cohort of waitresses who worked in a restaurant with a license to serve alcohol."

"It is a limitation of this study that individual information on alcohol consumption and tobacco smoking is lacking. Therefore, to obtain an indication of possible differences in these parameters between waitresses and the female population in general, we compared data from a questionnaire sent to all organized waitresses in February 1992 with data collected from a population sample at approximately the same time. . . . These data show that waitresses born in 1930 or later drink significantly more alcohol than the female population as a whole, and that waitresses in all birth cohorts smoke significantly more than the general population."

"Even if active smoking is the most important factor in lung cancer etiology, passive smoking also has been associated with lung cancer risk, and should be men-

tioned as a possible contributing factor in this case. Most studies on the effect of environmental tobacco smoke have been based on cancer incidence in non-smoking women with smoking husbands. Dose-response relations according to amount smoked by the husband, and risk ratios of 1.30 to 1.50 have been found, but the exposure levels are seldom very high. In restaurants, the situation may be very different, and waiters and waitresses probably represent the occupational group most exposed to environmental tobacco smoke. It was estimated that inside a poorly ventilated tavern, the 400 cigarettes being smoked per hour was equivalent to an exposure to 36 cigarettes smoked over an eight-hour period. Composites [sic] of tobacco also have been found in large amounts in blood and urine of nonsmoking bartenders. In a recent review, it has been estimated that total exposure to environmental tobacco smoke is likely to be at least 1.5 times higher for restaurant workers and at least 4.4 times higher for bar workers than that for individual living with one smoker. The epidemiologic evidence suggested a 50 percent increase in lung cancer risk among food service workers, after controlling for active tobacco smoking. The ratio of 2.2 in lung cancer risk between persons working in restaurants serving alcohol and those working in cafeterias etc. may be caused by different smoking habits, but also may be an indication of an effect of environmental tobacco smoke, assuming that the exposure from passive smoking is greater in restaurants. However, without data at the individual level, it is difficult to estimate the size of the contribution from environmental tobacco smoke."

RESPIRATORY DISEASES AND CONDITIONS -- CHILDREN

- [38] "The Effect of Genetic and Environmental Factors on the Prevalence of Allergic Disorders at the Age of Two Years," S.H. Arshad, M. Stevens, and D.W. Hide, *Clinical and Experimental Allergy* 23: 504-511, 1993

"An epidemiological, observational study was carried out to estimate the prevalence of allergic disorders and to identify genetic and environmental risk factors important in their development. . . . In this communi-

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cation the effect of various risk factors on the prevalence of allergic disorders at 2 years is reported."

"[T]he prevalence of various allergic disorders . . . varied from 3.2% for rhinitis to 10.9% for asthma. Fifty-three children were intolerant to foods. The most frequent was cows' milk in 21 children, followed by egg (19), wheat (6) and other foods (15) such as orange, fish, strawberry and peanut."

"Various allergic disorders were analysed to all risk factors of interest. Children who were skin tested had significantly more positive family history (OR, 1.4: CL, 1.1-1.7) than those who were not tested. . . . House dust mite was the commonest reaction in 37 children followed by egg (17), cat (13), grass-pollen (7), dog (5) and other reactions (10) which included cows' milk, budgie, fish, strawberry and peanut."

"Positive family history was a significant risk factor for total allergy, asthma, eczema and rhinitis. . . . Maternal and sibling allergy were significant for total allergy and eczema. Paternal allergy was not a significant risk for any of the allergic disorders."

"Male children developed asthma and positive [skin prick test] SPT more often than female."

"Low birth weight (<2.5 kg) children developed total allergy, asthma, food intolerance and positive SPT significantly more often than those with normal birth weight. Low birth weight was also a significant risk for skin-test reactivity to house dust mite: 3.4 (1.0-11.7)."

"No significant relationship could be detected between method of feeding and various allergic manifestations in the second year of life."

"Asthma was significantly related to maternal smoking but no effect of paternal smoking was observed."

"Children born during winter months had significantly less asthma compared to other months. A higher percentage of children born during autumn months developed rhinitis. When adjusted for other variables this was significant."

"The percentage of children who developed asthma and rhinitis was higher among the lower S-E [socioeconomic] groups. When adjusted for other variables the risk was significant for rhinitis (1.6 [1.1-6.3]) but not for asthma."

"There was no effect of presence of furry pets (cat and/or dogs) on the development of allergy. A curious relationship was observed with significantly less food intolerance in children with furry pets inside the house."

"When positive SPT was added to the regression model, it was found to be significant for eczema (3.6 [1.9-6.5]), rhinitis (2.8

[1.3-6.3]) and food intolerance (5.1 [5.6-10])."

"We found a highly significant effect of maternal smoking on the development of asthma. This may just be an irritant effect on the children's airways and may not lead to permanent bronchial hyperreactivity although children of smoking parents suffer from more frequent wheeze and lower FEV₁ than those of non-smoking parents. A longer follow-up is required to clarify this effect. . . . Paternal smoking was not a risk factor for any of the allergic disorders. The likely explanation would be that fathers do not frequently smoke in the vicinity of the child."

[39] "Passive Smoking Effects on Wheezy Bronchitis," A. Bener, A. Al-Frayh, F. Ozkaragoz, and T.Q. Al-Jawadi, *Annals of Saudi Medicine* 13: 222-225, 1993

"The aim of the present investigation was to study the association between passive smoking and diagnosed wheezy bronchitis in Saudi schoolchildren; in addition, to confirm the harmful effects of parental smoking habits on respiratory symptoms in children."

"In the population study, questionnaires with a letter of explanation were distributed to the parents of 3,300 children. Parents of 3,041 children (93.3%) gave consent for study."

"[P]arental smoking had a significant effect on the frequency of children's wheeze when maternal and paternal smoking were considered separately and where both parents were smokers or neither parent smoked."

"The expected relationship between wheezy attacks in children and parental smoking habits appeared to be very significant. The effect of smoking on wheezing was highly significant."

"The study showed that paternal smoking had more influence on children's wheeze than maternal smoking."

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A higher proportion of non-smoking mothers is perhaps related to culture."

"Overall, the present investigation reconfirms a potential relationship between passive cigarette smoking and wheezy bronchitis in Saudi school children."

OTHER HEALTH ISSUES

- [40] "Effects of Exposure to Smoke on Folate Status," F.L. Kaufman, E.B. Gold, and M.B. Schenker, *American Journal of Epidemiology* 138: 659, 1993

"The prevalence of low red blood cell (RBC) folate levels has been reported to be as high as 15% in women aged 20-44 years. Since taking folate supplements has recently been reported to help prevent the occurrence of neural tube defects, it is important to identify factors that may reduce folate levels, especially in women of childbearing age. In this study, 220 working women aged 18-44 years completed a health and habits questionnaire and a food frequency questionnaire and had a blood sample drawn. . . . Smokers had significantly lower RBC folate than nonsmokers, with a greater percentage of smokers being folate deficient. When classified separately, passive smokers had significantly higher RBC folate compared with active smokers, but lower RBC folate than nonsmokers. This is suggestive of a dose-response relation. Serum folate was also significantly lower in active smokers and passive smokers versus nonsmokers. Additional analyses are presented evaluating the potential influence of such factors as dietary intake of folate; use of oral contraceptive agents, multivitamins, and medications; and parity. These data suggest a mechanism by which smoking might increase adverse reproductive outcomes that will also be further investigated in this study."

- [41] "Otitis Media in Children: Frequency, Risk Factors, and Research Avenues," C. Infante-Rivard and A. Fernandez, *Epidemiologic Reviews* 15: 444-465, 1993

"Otitis media is an infectious condition of the ear that can appear with or without acute symptoms.

Surgery for otitis media with effusion (ventilating tubes in the tympanic membrane) is reportedly the most common surgical procedure carried out on children in industrialized countries. Developmental and behavioral disorders have also been observed as a consequence of early onset otitis media with effusion. Otitis media is thus an important public health problem because of the morbidity, social costs, and consequences with which it is associated. Moreover, although research on the incidence of this disease and its risk factors has progressed in recent years, there are still many unanswered questions which need to be addressed."

"Studies from Sweden, Denmark, and Finland reported similar results on the frequency of acute otitis media, but they differed from the results reported from Boston. . . . Reports on prevalence and incidence of otitis media with effusion are even more divergent, and this may be due to clinical characteristics of otitis media with effusion or to differences between study designs, including selections of population, frequency of examinations, and diagnostic criteria. Despite the reported differences, it seems clear that otitis media with effusion is a highly prevalent condition in children, mainly in the first 2 years of life."

"Evaluation of the short- and long-term effects of complications and sequelae of otitis media is crucial to determine its actual importance and to establish the more adequate preventive and therapeutic strategies. The specific characteristics of hearing loss during childhood remain unclear."

"Younger children are more at risk of developing acute otitis media and otitis media with effusion than are older children. Younger children also have a greater risk of having persistent middle ear effusion. . . . Most of the studies agree that there is a sex difference in the risk of developing otitis media. However, the reason boys seem to be at higher risk than girls is not yet clear. Whether allergy is associated with otitis media remains unclear."

"The incidence and prevalence of otitis media were found to be higher during the winter than during the midsummer months in both hemispheres. . . . If socioeconomic status appeared related to otitis media in some studies, it may have been an association confounded by the crowding factor. . . . Duration of

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breast feeding appears to be a protective factor for otitis media, especially very early in life when children are more susceptible to the disease and more likely to have recurrent and persistent otitis media with effusion. Whether passive smoking is a risk factor for otitis media remains controversial. Future studies designed to adequately assess exposure to passive smoking, and in which there is appropriate control for confounders, may clarify this issue."

"Otitis media is a frequent disease in childhood; why age and sex are associated with the disease is not yet clear. Other host factors, such as anatomic, physiologic, immunologic, and genetic conditions, deserve better evaluation. Seasonal variations have been observed in many studies; the relation with upper respiratory tract infection epidemics needs to be substantiated. The role of combined bacterial and viral infection in the prevalence and persistence of otitis media also needs clarification. Breast feeding is quite consistently reported as a protective factor. Type of day-care attendance, socioeconomic status, and passive smoking have been found to be risk factors in many studies but not in all. Larger studies free of selection biases are still needed to elucidate the role of these risk factors. Clarifying the specific characteristics of hearing loss during childhood, particularly its long-term developmental and behavioral consequences, is of capital importance."

"In summary, appropriate studies should be designed and conducted to improve our knowledge of the causal and prognostic factors of this disease; this may allow early identification and adequate management of children at risk of potential complications and sequelae."

- [42] "Passive Smoking and Otitis Media with Effusion in Children," J.M. Rowe-Jones and M.J. Brockbank, *Journal of Laryngology and Otology* 107: 1181, 1993

"Passive smoking has been linked with an increase in respiratory illness during infancy and childhood. Reports have now implicated it as another predisposing factor in the pathogenesis of otitis media with effusion (OME). We entered 163 children into a case-control study to determine whether any causal relationship exists between OME requiring grommet insertion and parental smoking."

"The case group consisted of 100 children with symptomatic OME, present for more than three months and surgically confirmed with myringotomy at the time of grommet insertion. The control group consisted of 63 paediatric in-patients attending for orthopaedic or general surgery procedures."

"The prevalence of smoking by at least one parent was not found to be significantly different amongst children with persistent OME requiring grommets to that amongst children with normal ears (54 percent vs. 49 per cent). Thirty children also underwent adenoidectomy for nasal obstruction at the same time as grommet insertion. . . . Sixteen (54 per cent) of these subjects had non-smoking parents."

"Parental smoking has not been shown to significantly increase the chance of children developing OME requiring tympanotomy tube insertion. We have also not been able to support claims that parental tobacco smoke may contribute to offspring OME by causing symptomatic adenoid hypertrophy."

- [43] "Influence of Maternal Smoking, Paternal Smoking, and Involuntary Maternal Smoke Exposures on Oral Cleft Defects," G.M. Shaw and C.R. Wasserman, *American Journal of Epidemiology* 138: 596

"Investigations have examined whether women who smoke during early pregnancy are at increased risk to have an infant with an oral cleft. Although results have been mixed, no study has estimated risks from both maternal and paternal smoking, nor from involuntary smoke exposures of women during pregnancy. To investigate these exposures, data were examined from a population-based case-control study of 555 oral cleft cases and 652 random liveborn controls from selected areas of California. Telephone interviews were conducted with the mothers of 460 cases and 482 controls. The unadjusted odds ratios for maternal smoking from 1 month preceding conception through the first trimester were 1.4 (95% confidence interval (CI) 1.0-1.9) and 2.2 (95% CI 1.3-3.6) for 1-19 and \geq 20 cigarettes/day, respectively. For paternal smoking any time from 3 months preceding conception through the first trimester, the odds ratios were 1.1 (95% CI 0.82-1.6) and 1.7 (95% CI 1.1-2.5) for 1-19 and \geq 20 cigarettes/day. The odds ratios for cleft lip with or without cleft palate were similar to those for cleft palate

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